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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,231	12/28/2001	Petra Koschany	MSI	9863

7590 06/16/2004
James C Wray
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EXAMINER

CHANNEY, CAROL DIANE

ART UNIT PAPER NUMBER

1745

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,231

Applicant(s)

KOSCHANY, PETRA

Examiner

Carol Chaney

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**~ The MAILING DATE of this communication appears on the cover sheet with the correspondence address ~
Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3 and 5-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3 and 5-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 6, 8-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 11 and 12 clarification of the phrase "ratio heat conductivity parallel to the membrane to density of $> 0.04 \text{ W m}^2/(\text{kg K})$ " has not been made, (see office action mailed 29 September 2003) and thus the claims are indefinite.

Claims 2, 3, 5, 6, 8-10, 12, and 14-16, which all depend upon claim 13, are directed to a fuel cell *system*. Claim 13 is directed to a *method of operating a* fuel cell system. The improper dependencies render the claims indefinite.

Claims 7, 11, and 13 recite methods of operating fuel cell systems, but fail to provide any steps for carrying out the claimed methods. Thus, these claims are indefinite.

Allowable Subject Matter

In a telephone interview with Meera Narasimhan on 20 April 2004, it was agreed that claim 13 would be amended as follows.

Please replace claim 13 by the following:

Claim 13: A method for operating a fuel cell system,
the fuel cell system comprising:

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- i) at least one active membrane comprising a catalyst sandwiched between an anode layer and a cathode layer,
- ii) a fuel supply having access to the anode layer,
- iii) an air supply having access to the cathode layer,
- iv) an air filter contained in a single fuel cell cathode side diffusion structure,
- v) air penetrating ducts in the cathode layers to allow an airflow parallel to the membrane at a flow rate resulting in a stoichiometric rate in the range of 25 to 140;

wherein the method of operating the fuel cell includes the steps of

- a) introducing air from the air supply to the fuel cell under pressure, and
- b) using the air as both oxidant and coolant.

The examiner believed the following amendment would place the application in condition for allowance by removing indefinite claim language. However, upon a final review of the instant application, further improper dependencies of claims and indefinite language was found, as explained above. The examine apologies for any inconvenience this oversight may have caused. With entry of proposed claim 13, claims 2, 3, and 13 would be allowed.

The following is an examiner's statement of reasons for allowance:

The prior art fails to suggest applicants' claimed method of operating a fuel cell having air filter in the oxidant/coolant passages. The prior art does not suggest a method of operating a fuel cell with an air filter by providing an air flow which results in a stoichiometric air flow rate between 25 and 140 and using the air flow as both an oxidant and a coolant. The nearest prior art of Kawana et al., teaches the air in a fuel cell can be used as both a coolant and an oxidant, but there is no suggestion to employ this method in a fuel cell having an air filter in the oxidant path. One of ordinary skill in the art would recognize that the air flow dynamics in a fuel cell system which includes an air filter would be different from the air flow dynamics of systems which do not include air filters, and therefore there would be no motivation to apply the teachings of Kawana et al. to a system which includes an air filter.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will


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the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (571) 272-1284. The examiner can normally be reached on Mon - Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Carol Chaney
Primary Examiner
Art Unit 1745

12 June 2004